

The Maryland Fruit Grower



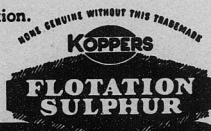
May, 1933



Maryland State
Horticultural Society



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Maryland ♦ Fruit ♦ Grower

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MEETING THE SPRAY RESIDUE PROBLEM

DR. E. N. CORY

State Entomologist, College Park, Maryland

"The announcement of a tolerance with regard to lead residues has changed the situation very materially with respect to the spraying program for Maryland apples during the coming season. At the Cumberland-Shenandoah Conference in Kearneysville, April 1, it was decided by all the states that a substitute for arsenate of lead would be utilized in all sprays subsequent to the first cover spray. The general concensus of opinion was that calcium arsenate offered the best possibilities as a substitute, but the selection was left to each state. The question of a substitute for arsenate of lead in the three weeks spray or first cover spray was left optional with the several states.

Subsequent to the meeting at Kearneysville, a meeting was held at Hagerstown with about forty representative growers present. After careful consideration of all angles of the problem, it was decided that all growers who had not purchased their requirements of arsenate of lead and who had light infestations of the codling moth in the orchards during the past year, should substitute calcium arsenate in all of their sprays. Where unfavorable conditions from the standpoint of codling moth infestation occur or where the supply of arsenate of lead had already been purchased, it was suggested that for the pink, the petal fall and the three weeks spray arsenate of lead be used with the usual fungicide. It was decided that in the use of calcium arsenate two pounds per hundred gallons with from six to ten pounds of excess lime would be the formula to be used.

On the 12th a meeting was held at Salisbury where a large acreage was represented. After a careful discussion of the situation it was decided that calcium arsenate at the rate of two pounds to 100 gallons, with excess lime at the rate of 6 to 10 pounds, would be used on apples that were expected to go into export trade. A number, having purchased their arsenate of lead requirements, expected to use it up in their first three sprays or in spraying peaches, and thereafter calcium arsenate would be used, except in those orchards where heavy codling moth infestations occur. Under such conditions, at least the first three sprays will be arsenate of lead with the probability that some calcium arsenate will be substituted at the discretion of the growers.

The information in regard to the use of calcium arsenate is rather

meager although it has been used for many years. In the Canadian Maritime Provinces it has been used successfully for some time. In this state the grower has used it exclusively for three years without any injury and has kept the codling moth down to less than a five percent infestation. Dr. Hough reported the successful use of calcium arsenate over a period of years in a number of lightly infested orchards near Winchester. Its principal disadvantages seem to be its decreased lethal qualities against the codling moth and the possibility of burning, particularly to the foliage. With the more general use of the material this year no doubt some method of preventing the injurious effects will be developed and the reduced cost should enable growers to apply the full schedule against the first brood, thereby increasing the efficiency of the spray program as compared with a spray program which included arsenate of lead in the past, but in which some of the arsenate of lead sprays have been omitted. This department is conducting laboratory and intensive orchard tests at College Park and field tests with calcium arsenate at several points in the state."

THIN FOR QUALITY AND PROFIT

MONROE McCOWN

In a test conducted by F. P. Cullinan of the Purdue University Agricultural Experiment Station, careful thinning increased the size of peaches greatly without decreasing the yield. Four twelve year old Elberta trees were thinned. Two of these trees, 6 and 8, had a supposed light set of fruit. However, when the crop was harvested these two trees yielded just as many bushels as the heavier loaded trees, 1 and 3, yet they produced fewer fruits. The increased size accounted for this, as can be seen by studying table 1.

Table 1—Influence of Number of Fruits per Tree Upon Size of Elberta Peaches:

Tree Number	Number of Peaches per tree	Yield in bushels	Peaches per bushel
1 -----	2416	10.5	230
6 -----	1780	10.4	170
3 -----	1801	8.0	225
8 -----	962	8.4	115

The market value of the peaches produced by trees 6 and 8 was greater than that of the fruit from the heavier loaded trees. Suppose the average increase in sale value was only 25 cents a bushel. This would leave a net gain of over \$2.50 for tree No. 6 and in excess of \$2.00 for tree No. 8. In some recent thinning tests in New Jersey the average sale price of Belle of Georgia peaches was increased \$0.66 a bushel by thinning.

Costs Nothing to Thin

One will admit that labor has to be paid so the old check book must be used to pay for the hours spent in thinning. After all, this is only a part of the harvest bill and must be paid whether one thins and grows big red cheeked fruits that the trade cannot resist and will pay a premium for or small, insipid, unattractive fruits that may rot while waiting for a buyer.

Thinning reduces the harvesting bill for there will be less individual fruits to pick and fewer to handle at the packing shed. So there is no rightful charge for thinning. It is one of the very rare operations that cost the grower nothing yet pay big dividends. Perhaps that is the reason more thinning is not done. Evidently there should be more Scotchmen growing peaches.

When and How

Recent work indicates that thinning may be delayed a few weeks with results comparable with those from early thinning. There are advantages to late thinning. Injured and malformed fruits can be detected and removed. However, the thinning crew seldom removes enough fruits in the first operation and a second trip through the orchard to further lighten the load on various trees is usually needed. For this reason the grower should start early to complete both trips, at least six weeks before harvest.

Amount of Thinning Depends Upon Vigor

Ordinarily the fruits are spaced six to eight inches apart. The most economical spacing of the fruits depends upon the vigor of the tree. Young trees usually can size up a relatively heavier load of fruit than older trees. This is due to greater vigor or a more efficient leaf area. The amount of food manufactured by a tree depends not only upon number of leaves but upon the efficiency of the leaves. Weak leaves naturally cannot manufacture as much food as large healthy leaves. Shaded leaves are inefficient. Weakened trees cannot be expected to size as many fruits as more vigorous trees. The crop on these weakened trees should be thinned heavier than normal. A nine-inch spacing is not too great for weak trees.

Furthermore, the scaffold branches of many trees lack the necessary strength to hold up a heavy crop. Wood rotting fungi have entered many wounds following the winter injury. Orchardists should be prepared to support these branches. Wooden props may be more efficient than wire braces in such trees.

Fertilize

Most orchardists have already made at least one application of a readily available nitrogen to the peach trees. The weakened trees may need a second application in June. This will depend upon the growth response. The amount needed in this second application may vary from half the normal application of one-fourth pound for each year the tree has grown in the orchard, to the normal application.

From Transactions of Indiana Horticultural Society—1931.

CROP PROSPECTS

Up to May 5, a partial survey showed injury of peach buds in Maryland varying from no injury to 80%. The injury seemed to vary between sections and varieties, and total damage does not seem to be alarmingly serious. Apples bloomed heavily in most varieties, but was spotty in sections and varieties. Freeze injury did not appear to be worth noticing.

Leaf curl of peach was serious in some sections. It was too early

to determine scab injury of apple.

Reports indicate injury in nearby states. An attempt will be made to give a more detailed report in the May issue of the Maryland Fruit Grower.

THINNING OF APPLES

There are many factors that determine the type of thinning to be done on apple trees. The grower must, first of all, be governed by the tree vigor, and its ability to carry a heavy crop. Soil type and water-holding capacity will enter into the matter, and, of course, variety and market preference. Some growers grow fruit for export, some for trade that wants big apples and others whose trade prefers medium-sized fruit. In spite of decisions as to severity of thinning, the average tree is never thinned enough. A good plan is to be sure to get off the blemished stuff and thin the rest of the fruit to from 4 to 8 inches, breaking clumps so as to leave one fruit per spur.

HERE'S ECONOMY

Out at Indiana Experiment Station they have a new way to handle trees that set light crops. Trees that do not bloom are tagged by tying binder twine around the trunk. After fruit set, all trees that show evidence of setting 3 pecks or less are also tagged and the fruit is removed from these trees. These trees receive only the early scab sprays, and are given no further sprays. All other trees with good crops are sprayed as usual.

What is the saving? Last year about 800 trees were marked and all scattered fruit removed. It took 336 man hours to do the work at a cost of \$65.00. The cost of 5 summer sprays on the 800 trees would have cost about \$200 for labor and materials, beside the saving in cost of using codling moth bands on these trees.

PEACH THINNING

J. S. SHOEMAKER

Department of Horticulture, Ohio Experiment Station, Wooster

A summary of the peach thinning work at the Ohio Experiment Station in 1931 and 1932 is as follows:

When the Crop Was Especially Heavy, 1931

1. Early thinning (about mid-June or just before or soon after the start of the June drop) required about twice as much time per tree as did late thinning (soon after most of the June drop peaches had fallen, about a month later than the early thinning). The chief reason for this is that by the time of late thinning many of the peaches had dropped naturally.

2. Early thinning was more effective than late thinning in promoting increased size of fruit. In fact, early thinning was the chief factor in increasing size throughout the work.

3. Increasing the spacing at thinning resulted in an increase in size of fruit when the thinning was done early but not when it was done late.

4. An Elberta tree left unthinned yielded 8.9 bushels, of which only about one-fourth was marketable under prevailing conditions. The thinned trees produced a lower yield but because of the larger size more was marketed than in the case of the unthinned tree. The early thinning, although expense was greater, about doubled the receipts per Elberta tree over late thinning or no thinning.

5. Less tree breakage occurred on the thinned trees, particularly on those where thinning was done early, than on the unthinned tree.

6. Varieties with comparatively small fruit responded less to thinning than did those capable of developing large size.

7. On the unthinned tree, about 95 per cent of the peaches graded in the smallest sizes. Late thinning decreased the percentage of peaches in the small sizes but did not promote the large size that resulted from early thinning.

8. On a given date, thinning to four inches was slightly speedier than thinning to eight inches.

When the Crop Was Good and the Fruit Sized Well, 1932

1. The work was repeated so that the trees receiving a certain treatment in 1931 received the same treatment in 1932.

2. The most notable feature was that the Elberta trees thinned early in 1931 and again in 1932 produced twice as much fruit in 1932 as those thinned late in the two years and four times as much fruit in 1932 as the tree left unthinned over the two-year period. The averages were 4, 2, and 1 bushels, respectively.

3. The influence of time of thinning on size was less pronounced in 1932 than in 1931. The average percentages of large size ($2\frac{3}{4}$ inch up) in 1932 were: Early thinning, 30 per cent; late thinning, 50 per cent; no thinning, 70 per cent. However, when figured on a bushel basis instead of on a percentage basis the early thinned trees produced a greater quantity of large peaches because the yield per tree was greater than on the late thinned or unthinned trees.

Remarks

The summary is based on work conducted under particular conditions, which should be borne in mind with respect to general application. It would not be proper to assume that results secured on a tree bearing 9 bushels of fruit would be the same as on a tree bearing one bushel. A feature of the work is that it is in years when the crop is exceptionally heavy that thinning assumes greatest significance. Pruning can offset some thinning requirements in part but not entirely under all conditions. The cumulative effect which is shown for the two-year period is limited in general application by the fact that a crop failure or light crop may intervene in many cases and thus permit the apparently necessary recuperation from a heavy crop. The work seems to show certain rather fundamental features which may be associated with thinning work when the crop is exceptionally heavy. It does not necessarily conflict with the viewpoint that comparatively late thinning may be best in years when the crop is not particularly heavy. It is hoped to continue the peach thinning work to secure information over a longer period of years and a wider range of conditions.

LET'S GO

The Secretary of the Eastern Apple Growers' Council, which is composed of the Presidents of the State Horticultural Societies east of the Missouri River, reports that 15 State Societies have become members of the Council, and others are planning to become members. Only problems of regional interest come before the Council, which meets annually, although if urgent problems come up, they are given prompt attention. It looks as though Eastern fruit growers are really going to profit by such an organization.

CASH INCOME FIGURES

In a report released by the Maryland Crop Reporting Service, College Park, April 15, 1933, Maryland farm incomes on various products were given. Among the fruit crops, the following figures appeared:

	1929	1930	1931	1932
Apples	\$2,146,000	1,229,000	1,512,000	606,000
Peaches	703,000	328,000	418,000	237,000
Pears	37,000	23,000	36,000	21,000
Other Tree Fruits	63,000	62,000	29,000	24,000
Grapes	10,000	10,000	10,000	7,000
Strawberries	1,867,000	1,258,000	746,000	862,000
Small Fruits	217,000	151,000	90,000	193,000

In another report, figures show that if the pre-war (1910-1914) price of apples is considered as 100%, apple prices paid to growers in 1932 were 84%. Of further interest is the fact that prices in 1933 run: January, 82%, February 95%, March, 101%. In March 1932, the price was 88%. Fruit prices are holding up rather well, as the following figures, for March, 1933, will show: Wheat, 57%; apples 101%; potatoes, 75%; chickens, 86%; eggs, 53%; hay, 65%.

REPUTATION

The West Virginia Market Bulletin, February 1, 1933 gives some striking news of apple marketing. We read:—"The high quality of West Virginia fruit marketed abroad last season is illustrated by a report from a foreign representative of the U. S. Department of Agriculture, who attended an auction of early fruit in Liverpool. When Canadian and other fruit was bringing from 8 to 16 shillings, a shipment of West Virginia fruit was eagerly bid up to from 37 to 40 shillings for the best stock. The observer writes: 'The room was crowded. Every buyer got to his feet when the West Virginia apples appeared and started to yell, and for a few minutes the air was full of apples. Buyers were shouting and holding up their hands for samples. It was a great demonstration, and what a contrast from just a few minutes earlier. It would have given you a thrill.'"

HAVE YOU READ THE ADVERTISEMENTS?

A NEW ONE

We've been told to keep orchard crates in tightly screened rooms or cellars, to prevent codling moths from flying from crates to orchard. How to take care of the many moths that "spin up" in the cracks and crevices of the packing house has caused concern. Professor J. J. Davis, Entomologist at Purdue University, reporting in April, 1933 "Hoosier Horticulture", tells of a grower that tried all the tricks of codling moth control, but still wasn't satisfied. He has a packing house 72x72 feet and 3 stories high. This grower had screened his packing shed for six years, using tobacco cloth, but in 1931 he used a material called "brown cotton". This material was 9 feet wide, and costs 13½ cents per running yard. The total cost of material used for screening was \$31.60; cost of putting on, \$9.00; cost of lath and nails, \$1.50; cost of removing \$3.00; total, \$45.00. This cloth has been used for 2 years, and will probably be good for another year. The house was described as rather open, and probably there was a good-sized space to close in with the cloth.

It has been emphasized in many talks by entomologists, and by experience of growers, that it is more difficult to control codling moth in the trees near the packing house. Just imagine the many cracks and crevices in the packing house, grader, field crates and baskets, where codling moth has a chance to spend the winter. Now the figures as gathered by this grower who screened his packing house will prove more interesting. Between May 4 and July 31, 1931, a total of 31,707 moths were caught in the screened house, and when the cloth screen was taken down, it was found that about 60% of the moths had been caught between the cloth and the building, or a total of about 75,000 moths were kept from flying to the orchard. A total of 60,168 bushels of apples passed through the packing house, and Professor Davis figured that with an average of 125 apples per bushel, 75,000 moth larvae (worms) crawled out of 7,521,000 apples or 1 larva for every 100 apples. Remember that this was a rather heavily infested orchard. Now if each of these moths had laid only 50 eggs, well, figure it out for yourself.

At least, Professor Davis has given us a thought that we may be using the packing house as an incubator for moths, then spending a lot of money, trying to stop them after they have gone into the orchard to set up house-keeping.

Teacher: "If a man sold 5,000 bushels of apples at five dollars a bushel, what would he get?"

Fruit Grower's Son: "Heart failure."

"How's the boss feelin'?"

"He feels lots better since the doctor told him that he'd never be able to work again."

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THE IMPORTANCE OF THINNING

Speaking before the Maryland State Horticultural Society, last January, Dr. F. P. Cullinan said, in part:

"Under conditions of light pruning for a number of years along with adequate applications of nitrogen, we frequently find varieties setting too many fruits. The question is often asked, will it pay to thin the fruits? The answer will depend somewhat on the variety under consideration and the market preference for that variety. Where size and color are not important factors in market demand, it may not pay to thin from that standpoint. However, with many of our commercial varieties, size, color and quality of fruits are very important factors in marketing, and it has been shown that thinning is an important operation in securing them.

An adequate leaf area is necessary to obtain size and color on apples and this condition does not obtain on overloaded trees. Aside from the effect of thinning on the immediate crop, there is the effect of thinning on fruit bud formation for the following crop. For growers who have trees which are biennial due to over-bearing every other year, it will be profitable for them to spend some money on thinning the fruit in order to secure more nearly annual crops on those trees. This might reduce total production but would pay for the money expended by returns in greater size, quality and color of fruit.

Again, we must consider our soil environment when answering the question, will it pay to thin. In years of a heavy crop, trees on thin, shallow soils will frequently yield fruit of small size and poor color, when moisture conditions are below average. Thinning of fruits under such conditions will help to get increased size and color. The effect will be more pronounced with some varieties than with others."

NOT SATISFIED

The members of Wisconsin Horticultural Society are not yet satisfied with their present small fruit varieties, so are trying new sorts through their Fruit Testing Club. They have a recommended list of varieties for trial as follows:—5 strawberries, 2 red raspberries, 2 black raspberries, 3 plums and 1 currant. They also recommended 7 new apple varieties for trial. It is to be remembered that the Minnesota climate calls for varieties, resistant to both climate and disease. In Maryland, trials of new varieties are suggested only on a small scale, or as replacements, until we know more about the tree growth, vigor, yield, etc.

Meanwhile, trials are being made of many varieties of apple, peach, pear, plum, cherry, grape, raspberry and strawberry at the University of Maryland Experiment Station, to determine the value and adaptability of these varieties to Maryland conditions. Results of these tests will be passed on to growers when sufficient, reliable information is obtained.

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A mule can't pull when he's kickin', and he can't kick when he's pullin'.

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Lime sulphur decreases the killing power of a poison. Sulfocide increases it, so you get better codling moth control with less poison.

You may have already started to use lime sulphur and arsenate of lead. Finish up with Sulfocide and calcium arsenate, and avoid lead residue; but don't use calcium arsenate on peaches or stone fruit.

This new lead tolerance may prove a blessing in disguise.

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